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EXAMINER

TSOY, ELENA

ART UNIT	PAPER NUMBER
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1762

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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 09/726,372
Filing Date: December 01, 2000
Appellant(s): NAGELI ET AL.

MAILED
JAN 13 2005
GROUP 1700

Virgil H. Marsh
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed November 29, 2004.

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(1) *Real Party in Interest*

A statement identifying the real party in interest is contained in the brief.

(2) *Related Appeals and Interferences*

A statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief.

(3) *Status of Claims*

The statement of the status of the claims contained in the brief is correct.

(4) *Status of Amendments After Final*

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) *Summary of Invention*

The summary of invention contained in the brief is correct.

(6) *Issues*

The appellant's statement of the issues in the brief is correct.

(7) *Grouping of Claims*

Appellant's brief includes a statement that claims of Group 1 (claims 28-46, 48-55) and Group 2 (claim 47) do not stand or fall together (See Appeal Brief, page 42).

(8) *Claims Appealed*

The copy of the appealed claims contained in the Appendix to the brief is correct.

(9) *Prior Art of Record*

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5,837,360

TAKANO et al

11-1998

(10) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 28-55 are rejected under 35 U.S.C. 102(b) and 103(a). This rejection is set forth in a prior Office Actions, mailed on 2/13/2003, 8/05/2003 and 4/1/2004.

Specification

The amendment filed on November 26, 2002 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: “The temperature of the aluminum foil, with which the coextruded plastic and adhesion-promotion agent is being combined, is such that the temperature at the surface of the plastic coating and the adhesion-promotion agent lies **below** the crystallite melt point (Tk) of the plastic”.

Applicant is required to cancel the new matter in the reply to this Office Action.

Claim Rejections - 35 USC § 112

Claims 28-55 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. A recitation “the temperature at the surface of the plastic coating (14) and the adhesion-promotion agent (16) lies **below** the crystallite melt point (Tk) of the plastic” in independent claims 28 and 55 is a new matter since it was not described in the specification as filed.

Claim Rejections - 35 USC § 102

Claims 28, 29, 51, 52 are rejected under 35 U.S.C. 102(b) as anticipated by Heyes et al (US 5,093,208).

As to claims 28, 52, Heyes et al disclose a process for production of an aluminum foil (See column 2, lines 15-24) coated with a (sealable and sterilizable) plastic such as polyester (See Table I, laminate C) or polypropylene (PP) (See Table I, laminate H) comprising co-extruding either inner layer of PET and outer layer another PET (See PET composite - Type III in the KEY to Table I) or PP with maleic anhydride (MAH) graft modified PP (an adhesion promoting agent) (See PP composite - Type I in the KEY to Table I) and combining co-extruded composite with the aluminum foil between two rollers (See Fig. 1; column 8, lines 9-19), the temperature at the outer surface of the plastic lies **below** the melt point (crystallite point) (T_k) of the plastic (See column 3, lines 25, 46-47), then passing continuously the coated aluminum foil through a heater 10 (oven) to increase the adhesion strength between the aluminum foil and the plastic coating (See Fig. 1; column 7, lines 12-16) with a temperature set so that the temperature at the outer surface of the plastic lies above the melt point (crystallite point) (T_k) of the plastic (See column 3, lines 48-51), and quenching (cooling in a shock-like manner) the coated aluminum foil such that the crystalline plastic is converted to non-crystalline or amorphous form (i.e. crystalline proportion at least in the surface area of the cooled PP layer is as small as possible) (See column 1, lines 45-47; column 2, lines 1-15; column 3, lines 39).

It is the Examiner's position that the surface area of the cooled PP layer has claimed properties such that if the quenched non-crystalline plastic still has small amount of crystals, then the crystal grains are as small as possible *inherently* since it is produced by a method identical or substantially identical processes to that of claimed invention.

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It is held that where the claimed and prior art products are identical or substantially identical in structure or composition, or are produced by identical or substantially identical processes, *claimed properties or functions are presumed to be inherent*. See MPEP 2111.02, 2112.01. In re Best, 562 F.2d 1252, 1255, 195 USPQ 430, 433 (CCPA 1977). “When the PTO shows a sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” In re Spada, 911 F.2d 705, 709, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990).

As to claim 29, re-heating temperature is 270 °C (See Table II, type H; column 8, lines 9-19), which is at least 20 °C above crystallite melt point (T_K) of PP since T_K of PP is around 160°C, as evidenced by applicants (See specification, page 3, line 33). Consequently, temperature of the heater 10 (oven) is also at least 20 °C above T_K of PP.

As to claim 51, the quenching (shock-like cooling) is carried out by cold water (See column 8, lines 6-8, 19).

Claim 55 is rejected under 35 U.S.C. 102(b) as anticipated by Heyes et al (US 5,093,208).

Heyes et al disclose a process for production of an aluminum foil (See column 2, lines 15-24) coated with a (sealable and sterilizable) plastic such as polyester (See Table I, laminate C) or polypropylene (PP) (See Table I, laminate H) consisting of co-extruding either inner layer of PET and outer layer another PET (See PET composite - Type III in the KEY to Table I) or PP with maleic anhydride (MAH) graft modified PP (an adhesion promoting agent) (See PP composite - Type I in the KEY to Table I), and combining co-extruded composite with the aluminum foil between two rollers (See Fig. 4; Table I, type H; column 3, line 35; column 8, lines 9-19), the temperature at the outer surface of the plastic lies below the melt point (crystallite point) (T_K) of

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the plastic (See column 3, lines 25, 46-47), then passing continuously the coated aluminum foil through a heater 10 (oven) to increase the adhesion strength between the aluminum foil and the plastic coating (See Fig. 1; column 7, lines 12-16) with a temperature set so that the temperature at the outer surface of the plastic lies above the melt point (crystallite point) (T_k) of the plastic (See column 3, lines 48-51), and quenching (cooling in a shock-like manner) the coated aluminum foil such that the crystalline plastic is converted to non-crystalline or amorphous form (i.e. crystalline proportion at least in the surface area of the cooled PP layer is as small as possible) (See column 1, lines 45-47; column 2, lines 1-15; column 3, lines 39).

It is the Examiner's position that the surface area of the cooled PP layer has claimed properties such that if the quenched non-crystalline plastic still has small amount of crystals, then the crystal grains are as small as possible *inherently* since it is produced by a method identical or substantially identical processes to that of claimed invention.

Claim Rejections - 35 USC § 103

Claims 30-50, 53, 54 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyes et al (US 5,093,208) in view of Takano et al (US 5,837,360).

As to claims 30-35, 48, 49, Heyes et al, as applied above, fail to teach that: T_E of shock-like cooling is at least 40°C below T_K of PP (Claims 30, 48) or at least 60°C (Claim 31) or at least 80°C below T_K of PP (Claim 32); the shock-like cooling speed (V_A) is greater than $10^\circ\text{C}/\text{sec}$ (Claims 33, 49), greater than $50^\circ\text{C}/\text{sec}$ (Claim 34) or greater than $100^\circ\text{C}/\text{sec}$ (Claim 35).

Takano et al teach that the shock-like cooling of metal foil coated with co-extruded PP plastic/MAH modified PP (See column 2, lines 1, 54-55, 61-67; column 3, lines 1-6) and heated above T_K of PP based layers (See column 5, lines 35-52) with a speed (V_A) greater than $10^\circ\text{C}/\text{sec}$

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(See column 6, lines 10-12), or greater than 50°C/sec, preferably greater than 100°C/sec (See column 6, lines 10-12) so that T_E of the shock-like cooling is at least 55 °C (See column 5, lines 59-63), reduces crystallinity of PP based layers to not more than 55 % thereby providing the coated metal foil with superior corrosion resistance and peeling resistance (See column 1, lines 57-62; column 2, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have carried out shock-like cooling of metal foil coated with co-extruded PP plastic/MAH modified PP in Heyes et al under conditions of Takano et al with the expectation of providing the coated metal foil with desired superior corrosion resistance and peeling resistance, as taught by Takano et al.

As to claims 36, 39-43, 50, Heyes et al fail to teach that shock-like cooling is carried out by partial looping over at least one cooled roller (Claims 36, 50) or by passing through ice-cooled water (Claim 39) or by spraying with liquid coolant (Claim 40) such as water (Claim 41) or by means of gas (Claim 42) or by means of cooled gas (Claim 43).

Takano et al teach that the shock-like cooling can be carried out by *any* known means provided that cooling conditions are satisfied (See column 6, lines 24-27). Water spray and partial looping of a metal foil containing laminate over at least one cooled roller are well known means for shock-like cooling of the laminate, as evidenced by Levendusky et al (US 5,919,517, column 3, lines 29-60; column 12, lines 23-24; column 14, lines 34-53). Ice-cooled water and cooled gas are also well known conventional means for shock-like cooling laminates.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used any cooling conventional means including ice-cooled water, cooled gas, water spray or partial looping over at least one cooled roller of a metal foil containing laminate shock-

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like cooling of a coated metal foil of Heyes et al in view of Takano et al since Takano et al teach that the shock-like cooling can be carried out by any known means provided that cooling conditions are satisfied.

As to claims 37, 38, Heyes et al further teach that shock-like cooling is carried out by passing through water (See Fig. 1).

As to claims 44, 45, Heyes et al further teach that an adhesion promoting agent is copolymer of propylene such as maleic anhydride (MAH) graft modified PP (See column Table I, example H).

As to claim 46, claim 46 is not addressed as further limiting *non-selected* member of Markush group.

As to claim 47, Heyes et al teach that it is *preferred* to laminate coextruded hot PP-based layers to a heated aluminum foil (See column 3, lines 40-45), and then re-heat the coated aluminum foil. Heyes et al fail to teach that aluminum foil is at room temperature when the aluminum foil is combined with coextruded PP-based layers.

Takano et al teach that PP-based layers on metal foil should not be allowed to cool to 100 °C or lower since MAH modified PP crystallizes rapidly from about 100 °C (See column 5, lines 42-52) to provide the coated metal foil with superior corrosion resistance and peeling resistance (See column 1, lines 57-62; column 2, lines 9-11).

Common sense dictates that temperature drop to 100 °C or lower can be prevented in a process of Heyes et al even when hot coextruded PP-based layers are laminated to an aluminum foil at room temperature if aluminum foil enters a heater 10 shortly or right after laminating.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used an aluminum foil at room temperature for laminating with hot coextruded PP-

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based layers as long as temperature of the coated aluminum foil is not allowed to drop to 100 °C or lower with the expectation of preventing crystallization of PP-based layers thereby providing the coated aluminum foil with the desired superior corrosion resistance and peeling resistance, as taught by Takano et al.

As to claims 53, 54, Heyes et al further teach that coated aluminum foil made by a process comprising shock-like cooling of heated coated aluminum foil can be used for making cans (See column 1, lines 14-19). However, Heyes et al fail to teach that that plastic coated metal cans may be used for packaging moist food including animal feed.

Takano et al teach that PP coated aluminum foil made by a process comprising shock-like cooling of heated coated aluminum foil provides the coated aluminum foil with superior corrosion resistance and peeling resistance (See column 1, lines 57-62; column 2, lines 9-11).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used PP coated aluminum cans made by a process of Heyes et al for packaging moist food including moist animal feed since Takano et al teach that PP coated aluminum foil made by a process comprising shock-like cooling of heated coated aluminum foil provides the coated aluminum foil with superior corrosion resistance and peeling resistance.

Response to Arguments

Applicant's arguments filed November 29, 2004 have been fully considered but they are not persuasive.

(A) Applicants argue that a new limitation (the temperature at the surface of the plastic coating and the adhesion-promotion agent lying *below* the crystallite melt point (Tk) of the plastic) added to independent claims 28 and 55 by Amendment is not a new matter. The oven

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heating requires that the temperature of the surface of the polypropylene coating and the acid-modified polypropylene of the exiting coextruded-coated aluminum coating lies above the crystallite melt point of the polypropylene, the temperature of the surface of the polypropylene coating and the acid-modified polypropylene of the coextruded-coated aluminum entering the oven lies below the crystallite melt point of the polypropylene. This is implicit disclosure in applicants' specification. Original independent process Claim 1, for example, did not recite increasing the crystalline melt point temperature of the polypropylene, so the temperature (of the surface of polypropylene and the acid-modified polypropylene) had to be below the crystalline melt point temperature of the polypropylene. Applicants state that referring to Figure 1, the distance between the outer end of the nozzle of extruder 12 and the nip region of rollers 20, 22 is small. The result of this short distance is that the reduction in temperature of melted coextrudate 14, 16 is minimal. The melted coextrudate 14, 16 and the aluminum foil met going into the nip region and are in the nip region for an instance. However, the temperature of the melted coextrudate essentially instantaneously drops to the extent that the temperature of the outer surface of the extrudate is less than the crystallite melt point of the polyolefin 14. This is so because, if the outer surface of the olefin was at or above such melt temperature, the pressure from the two rollers would squish and disrupt or force away at least the outer portion of the coextrudate. The temperature of the aluminum foil, before and after contact with the melted coextrudate, is below the crystallite melt point of polyolefin 14. The language objected to by the Examiner is supported by the disclosure, scientific/technical principles, and the knowledge of one skilled in the art as to what would happen in the first step of applicants' claimed process as a result of the apparatus and its arrangement shown in Figure 1, for example.

As to the argument that if the outer surface of the olefin was at or above such melt temperature, the pressure from the two rollers would squish and disrupt or force away at least the outer portion of the coextrudate. In contrast to the argument, a process of passing the extruded plastic with outer surface being at or above melt temperature between pressure nip rollers without squishing and disrupting or forcing away at least the outer portion of the extrudate, is well known in the art, as **extrusion lamination** (See, for example, US 2,714,571 and US 5,861,074). Note that these references do not represent a new ground of rejection. They are cited to show the state of art only.

As to the temperature of the aluminum foil, before and after contact with the melted coextrudate, being below the crystallite melt point of polyolefin 14. However, nowhere in the specification as filed or original claims such a limitation can be found.

As to scientific/technical principles, and the knowledge of one skilled in the art as to what would happen in the first step of applicants' claimed process. **It would be in accord with scientific/technical principles, and the knowledge of one skilled in the art, to heat in oven polypropylene coated aluminum foil having the temperature of the outer surface of the exiting polypropylene coated aluminum foil lying at or even above Tk of the polypropylene, e.g., 5-10 degree above Tk, so that the outer surface of the heated polypropylene coated aluminum foil would be heated to a temperature of, e.g. 20-50 degree above Tk.** Therefore, the fact that the exiting polypropylene coated aluminum foil should be heated in oven so that the temperature of the outer surface of the exiting polypropylene coated aluminum lies above Tk of the polypropylene is **not implicit disclosure in applicants' specification**, i.e. added limitation about temperature of the outer surface of exiting polypropylene coated aluminum foil being below Tk is new matter.

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(B) Applicants argue that Heyes et al does not disclose appellants' claim limitation of the aluminum foil, after lamination, being such that the temperature of the outer surface of the plastic of the coextrudate is below the plastic's crystallite melt point. The invention of Heyes et al. is limited to using extrudates or coextrudates of polyester or polyesters.

The Examiner respectfully disagrees with this argument. Heyes et al expressly teaches that the same method is applied to PP composite as to the polyester composite (See column 8, lines 8-19, Tables I and II). Heyes et al also expressly teaches that the temperature at the outer surface of the polyester lies **below** the melt point (crystallite point) (Tk) (See column 3, lines 25, 46-47). Since the same method is applied to PP composite, the temperature at the outer surface of the PP also lies **below** the melt point (crystallite point) (Tk).

(C) Applicants argue that nowhere does the invention of Heyes et al teach lamination using aluminum sheet that has a temperature lower than the coextruded polyester film. Heyes et al generically discloses laminating the coextruded polyester film to the metal sheet but such disclosure is not anticipatory because it does not teach all of the requirements and limitations of appellants' process claims. Heyes et al.'s generic disclosure is not a teaching of a process step where the relatively cool temperature of the aluminum foil causes the outer surface of the hot polyolefin to stay below its crystallite melt point (TK). Heyes et al. states: 'The laminated metal sheet of the invention is prepared by a process which compromises adhering directly to one or both major surfaces of the metal sheet a film comprising a polyester, the lamination conditions being such that during lamination the polyester film or films in the metal/polymer laminate is or are converted into non-crystalline or amorphous form.' (Col. 3, lines 33 to 39).

The Examiner respectfully disagrees with this argument. Firstly, the features upon which applicant relies (i.e., a process step where the relatively cool temperature of the aluminum

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foil causes the outer surface of the hot polyolefin to stay below its crystallite melt point (TK)) are **not recited** in the rejected claims. Nor specification as filed discloses the features. In the Amendment after First Office Action, Appellants introduced new claim 47 reciting that the aluminum foil (24) is at room temperature when the aluminum foil (24) and the coextruded plastic (14)/adhesion-promoting agent (16) are combined. This feature is not supported by the specification as filed and originally filed claims. Although Fig. 1 of Appellants does not show heating element, the heating element is not excluded (therefore, possibly also new matter). Secondly, Heyes et al teach that in a *preferred* embodiment (i.e., not necessarily) hot PP-based layers are coextruded to a heated aluminum foil (See column 3, lines 40-45). Heyes et al does not expressly show that aluminum foil is at room temperature when the aluminum foil is combined with coextruded PP-based layers. Takano et al teach that PP-based layers on metal foil should not be allowed to cool to 100 °C or lower since MAH modified PP crystallizes rapidly from about 100 °C (See column 5, lines 42-52) to provide the coated metal foil with superior corrosion resistance and peeling resistance (See column 1, lines 57-62; column 2, lines 9-11).

Common sense dictates that temperature drop to 100 °C or lower can be prevented in a process of Heyes et al even when hot coextruded PP-based layers are laminated to an aluminum foil at room temperature if aluminum foil enters a heater 10 shortly or right after laminating.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have used an aluminum foil at room temperature for laminating with hot coextruded PP-based layers as long as temperature of the coated aluminum foil is not allowed to drop to 100 °C or lower with the expectation of preventing crystallization of PP-based layers thereby providing the coated aluminum foil with the desired superior corrosion resistance and peeling resistance, as taught by Takano et al.

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For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

ELENA TSOY
PRIMARY EXAMINER

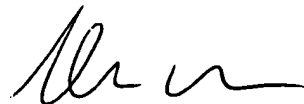

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